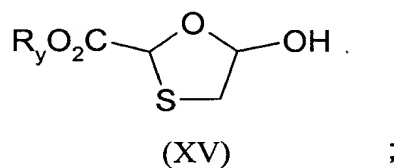


The following listing of claims will replace all prior versions, and listings, of claims in the application:

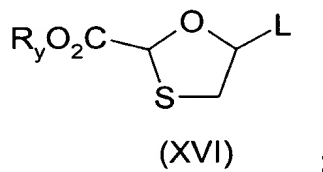
Listing of Claims:

35. (Previously Presented) A process comprising:

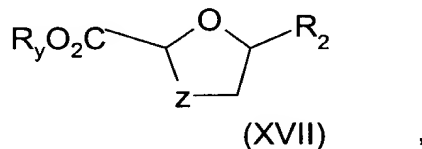
reacting a mercaptoacetaldehyde with a compound of formula $R_y\text{OOCCHO}$, wherein R_y is C_{1-12} alkyl or C_{6-20} aryl to obtain a compound of formula (XV)



converting the hydroxyl group of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



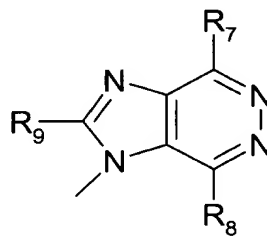
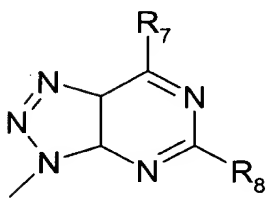
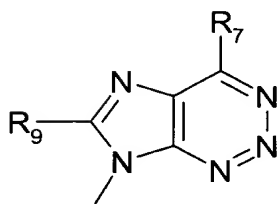
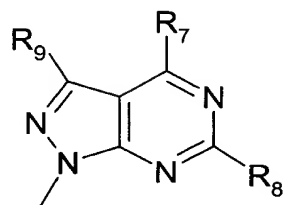
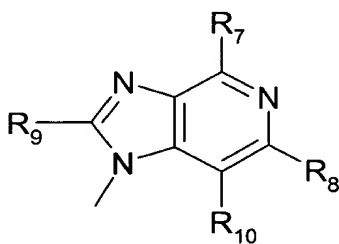
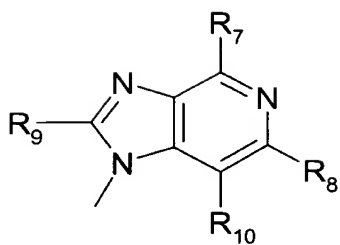
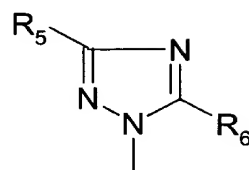
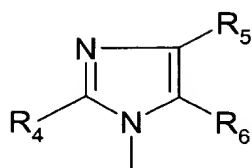
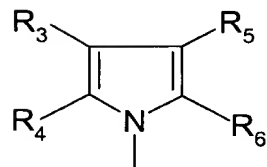
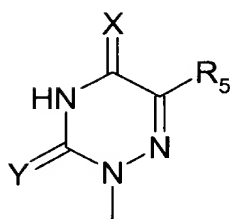
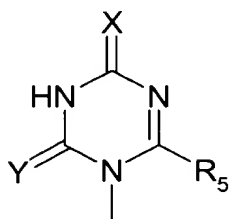
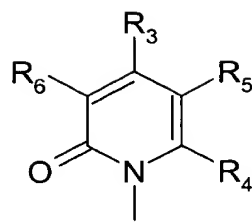
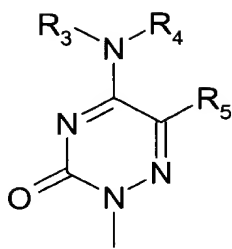
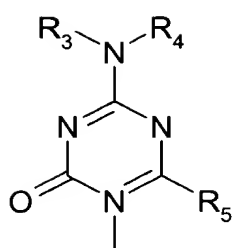
reacting the compound of formula (XVI) with a silylated R_2 - compound, in the presence of a Lewis acid, whereby said leaving group is displaced, to produce a compound of formula (XVII):



wherein

Z is S;

R_2 is selected from the following group:



X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

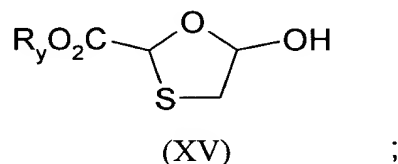
R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxycarbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxycarbonyl, carbamoyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

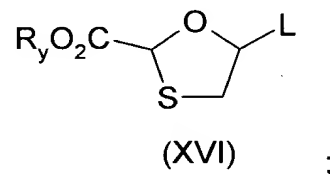
R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy.

36. (Previously Presented) A process comprising:

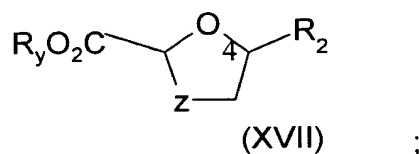
reacting a mercaptoacetaldehyde with a compound of formula R_yOOCCHO, wherein R_y is C₁₋₁₂ alkyl or C₆₋₂₀ aryl to obtain a compound of formula (XV)



converting the hydroxyl group of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



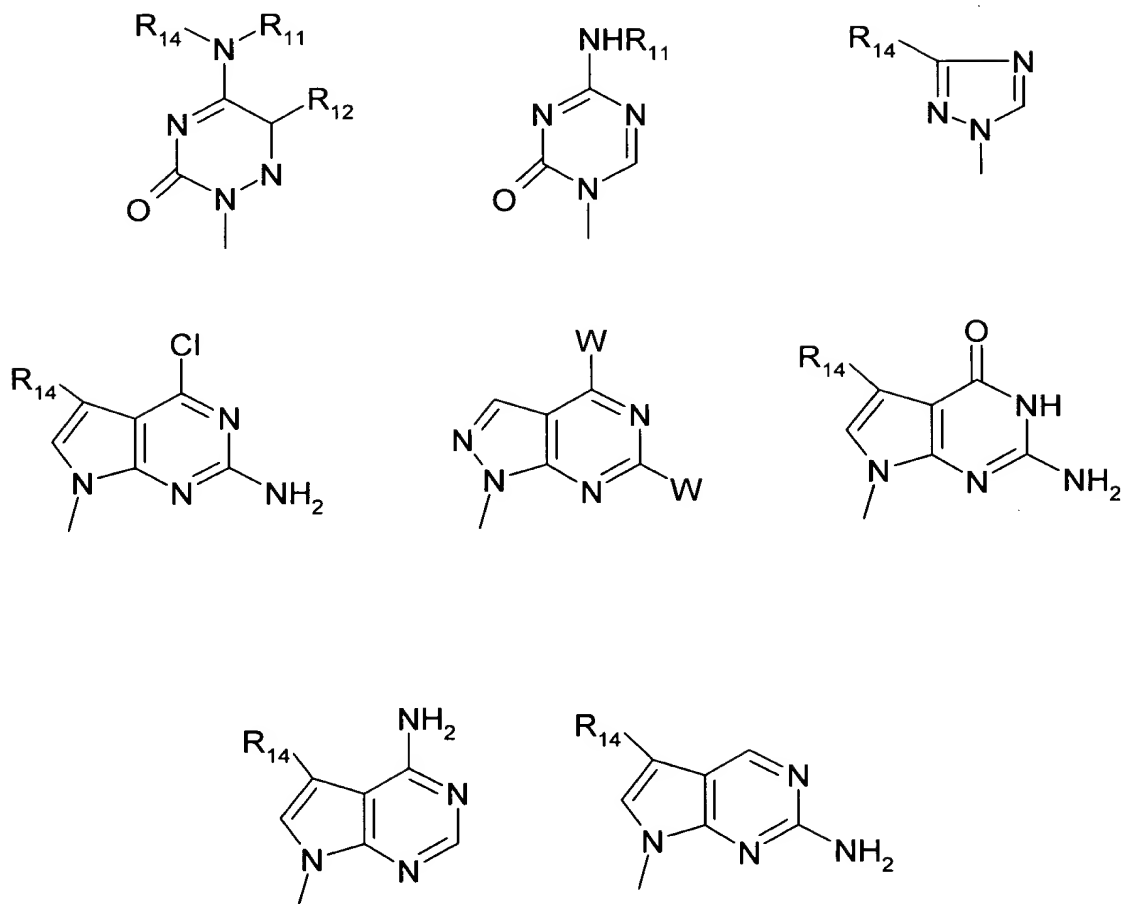
reacting the compound of formula (XVI) with a silylated R₂- compound, in the presence of a Lewis acid, whereby said leaving group is displaced, to produce a compound of formula (XVII):



wherein

Z is S;

R₂ is selected from the following group:



wherein

each R₁₁ is independently selected from hydrogen, acetyl, and C₁₋₆ alkyl;

R₁₂ and R₁₃ are independently selected from hydrogen, hydroxymethyl, trifluoromethyl, C₁₋₆ alkyl, C₁₋₆ alkenyl, bromine, chlorine, fluorine, and iodine;

R₁₄ is selected from hydrogen, cyano, carboxy, ethoxycarbonyl, carbamoyl, and thiocarbamoyl; and

each W is independently selected from hydrogen, bromine, chlorine, fluorine, iodine, amino, and hydroxyl.

37. (Previously Presented) A process according to claim 35, wherein L is OR_z, wherein R_z is selected from: C₁₋₆ alkyl groups, C₁₋₆ aliphatic groups, aromatic acyl groups, saturated or unsaturated alkoxy carbonyl groups, sulphonyl imidazolidine, carbonyl imidazolidine, aliphatic or aromatic amino carbonyl groups, alkyl imidate groups, saturated or unsaturated phosphinoyl, and aliphatic or aromatic sulphonyl groups.

38. (Previously Presented) A process according to claim 36, wherein L is OR_z, wherein R_z is selected from: C₁₋₆ alkyl groups, C₁₋₆ aliphatic groups, aromatic acyl groups, saturated or unsaturated alkoxy carbonyl groups, sulphonyl imidazolidine, carbonyl imidazolidine, aliphatic or aromatic amino carbonyl groups, alkyl imidate groups, saturated or unsaturated phosphinoyl, and aliphatic or aromatic sulphonyl groups.

39. (Previously Presented) A process according to claim 35, wherein the mercaptoacetaldehyde is a monomer obtained from 1,4-dithiane-2,5-diol dissolved in an inert solvent.

40. (Previously Presented) A process according to claim 39, wherein said inert solvent is selected from the group consisting of: pyridine, toluene and DMSO.

41. (Previously Presented) A process according to claim 35, wherein said compound of formula RyOOCCHO is ethyl glyoxylate.

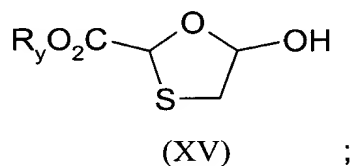
42. (Previously Presented) A process according to claim 36, wherein the mercaptoacetaldehyde is a monomer obtained from 1,4-dithiane-2,5-diol dissolved in an inert solvent.

43. (Previously Presented) A process according to claim 42, wherein said inert solvent is selected from the group consisting of: pyridine, toluene and DMSO.

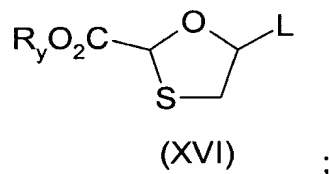
44. (Previously Presented) A process according to claim 36, wherein said compound of formula $R_yOOCCHO$ is ethyl glyoxylate.

45. (Previously Presented) A process comprising:

reacting a mercaptoacetaldehyde with a compound of formula $R_yOOCCHO$, wherein R_y is C_{1-12} alkyl or C_{6-20} aryl to obtain a compound of formula (XV)

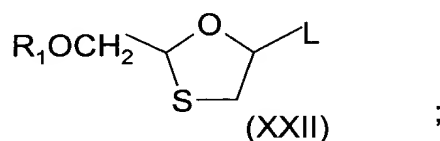


converting the hydroxyl of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



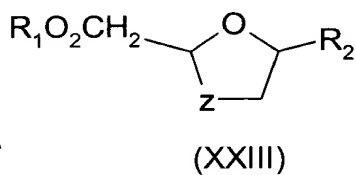
converting the group R_yO_2C of the compound of formula (XVI) to a hydroxymethyl group;

protecting the resulting hydroxymethyl with a protecting function R_1 to obtain a compound of formula (XXII):



wherein R_1 is selected from the group consisting of C_{1-16} acyl, t-butyldimethylsilyl, and t-butyldiphenylsilyl;

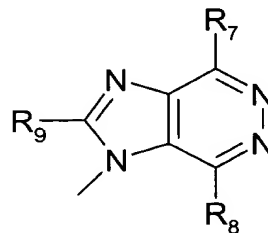
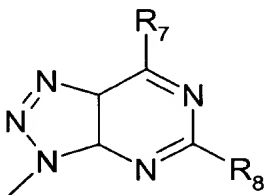
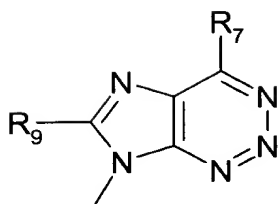
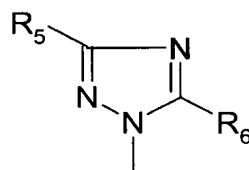
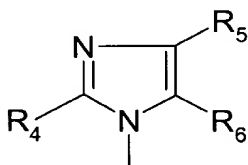
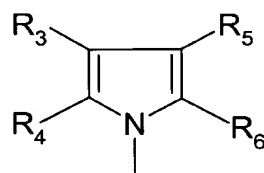
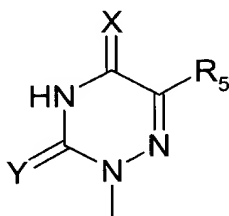
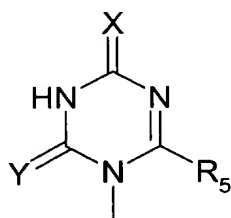
reacting the compound of formula (XXII) with a silylated- R_2 compound, in the presence of a Lewis acid, whereby said leaving group is displaced, to obtain a compound of formula (XXIII):

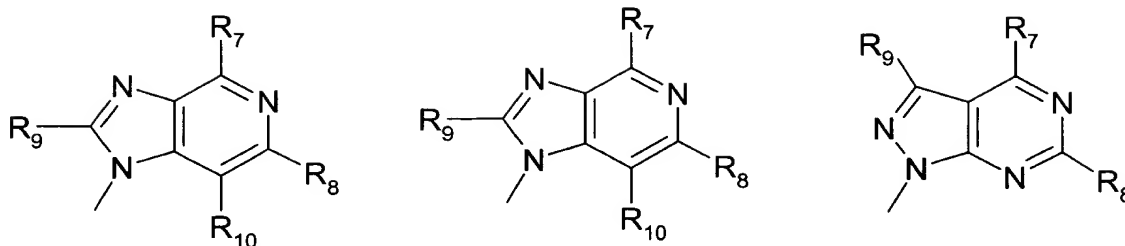


wherein

Z is S;

R_2 is selected from the following group:





X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxy, carbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

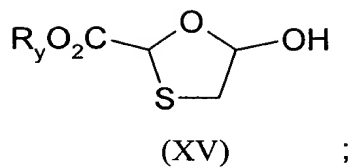
R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxy, carbonyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

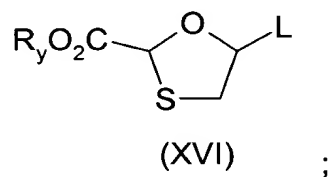
optionally further comprising oxidizing Z of said compound of formula (XXIII) to obtain a compound of formula (XXIII) wherein Z is S=O or SO₂.

46. (Previously Presented) A process comprising:

reacting a mercaptoacetaldehyde with a compound of formula R_yOOCCHO, wherein R_y is C₁₋₁₂ alkyl or C₆₋₂₀ aryl to obtain a compound of formula (XV)

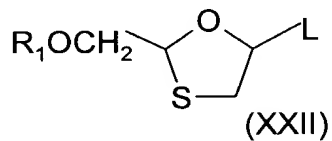


converting the hydroxyl of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



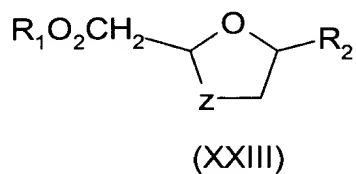
converting the group $\text{R}_y\text{O}_2\text{C}$ of the compound of formula (XVI) to a hydroxymethyl group;

protecting the resulting hydroxymethyl with a protecting function R_1 to obtain a compound of formula (XXII):



wherein R_1 is selected from the group consisting of C_{1-16} acyl, t-butyldimethylsilyl, and t-butyldiphenylsilyl;

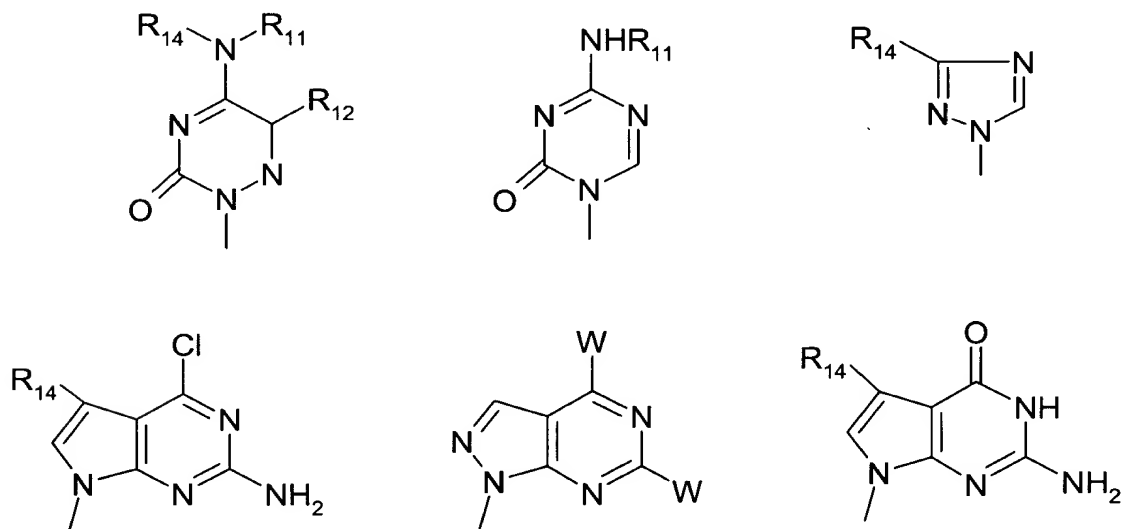
reacting the compound of formula (XXII) with a silylated- R_2 compound, in the presence of a Lewis acid, whereby said leaving group is displaced, to obtain a compound of formula (XXIII):

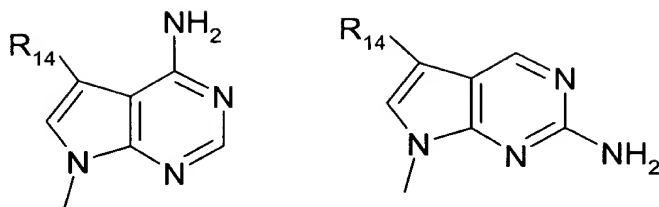


wherein

Z is S;

R_2 is selected from the following group:





wherein

each R_{11} is independently selected from hydrogen, acetyl, and C_{1-6} alkyl;

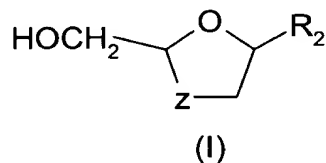
R_{12} and R_{13} are independently selected from hydrogen, hydroxymethyl, trifluoromethyl, C_{1-6} alkyl, C_{1-6} alkenyl, bromine, chlorine, fluorine, and iodine;

R_{14} is selected from hydrogen, cyano, carboxy, ethoxycarbonyl, carbamoyl, and thiocarbamoyl; and

each W is independently selected from hydrogen, bromine, chlorine, fluorine, iodine, amino, and hydroxyl; and

optionally further comprising oxidizing Z of said compound of formula (XXIII) to obtain a compound of formula (XXIII) wherein Z is $S=O$ or SO_2 .

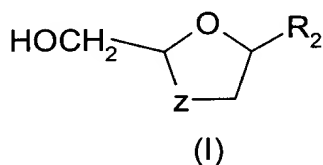
47. (Previously Presented) A process according to claim 45, further comprising the step of removing the hydroxyl protecting function R_1 from compound (XXIII) to obtain a compound of formula (I):



wherein Z is S, S=O, or SO₂, and R₂ is as defined.

48. (Previously Presented) A process according to claim 47, wherein the Lewis acid is selected from the group consisting of: TMSOTf, TMSI, TiCl₄ and SnCl₄.

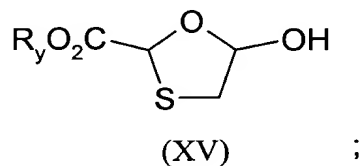
49. (Previously Presented) A process according to claim 46, further comprising the step of removing the hydroxyl protecting function R₁ from compound (XXIII) to obtain a compound of formula (I):



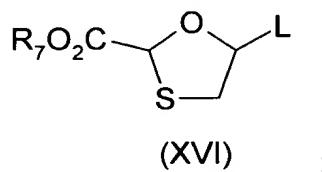
wherein Z is S, S=O, or SO₂, and R₂ is as defined.

50. (Previously Presented) A process according to claim 49, wherein the Lewis acid is selected from the group consisting of: TMSOTf, TMSI, TiCl₄ and SnCl₄.

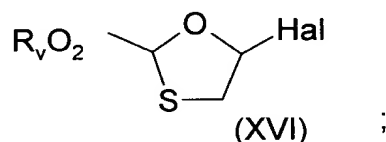
51. (Withdrawn) A process comprising:
reacting a mercaptoacetaldehyde with a compound of formula R_yOOCCHO, wherein R_y is C₁₋₁₂ alkyl or C₆₋₂₀ aryl to obtain a compound of formula (XV)



converting the hydroxyl of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):

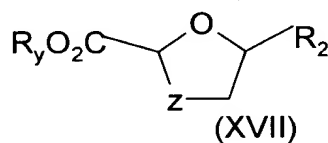


reacting the compound of formula (XVI) with a halogen-containing Lewis acid to obtain a compound of formula (XXVI):



wherein Hal is a halogen,

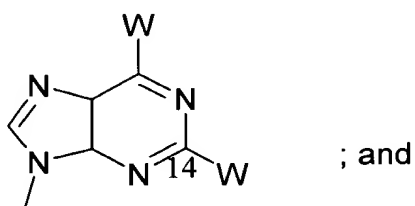
coupling the compound of formula (XXVI) with a silylated-R₂ compound, under basic condition, whereby said halogen is displaced to obtain a compound of formula (XVII):



wherein

Z is S;

R₂ is



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W is bromine, chlorine, fluorine, iodine, amino, or hydroxyl.

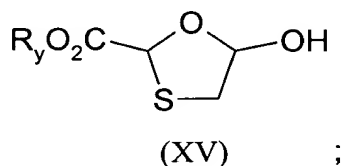
52. (Withdrawn) A process according to claim 51, wherein said halogen is iodine.

53. (Withdrawn) A process according to claim 51, wherein said Lewis acid is trimethylsilyl iodide.

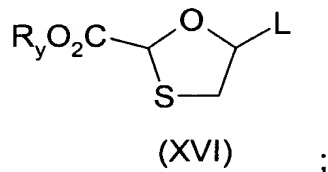
54. (Withdrawn) A process according to claim 53, wherein said purine compound is 6-chloropurine.

55. (Previously Presented) A process comprising:

reacting a mercaptoacetaldehyde with a compound of formula $R_y\text{OOCCHO}$, wherein R_y is C_{1-12} alkyl or C_{6-20} aryl to obtain a compound of formula (XV)



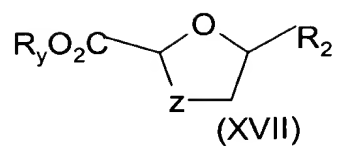
converting the hydroxyl of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



reacting the compound of formula (XVI) with a silylated $-R_2$ compound in the presence of a Lewis acid, whereby said leaving group is displaced, to produce a compound of

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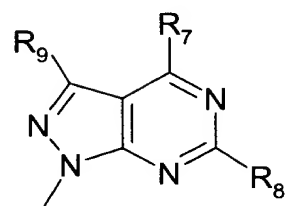
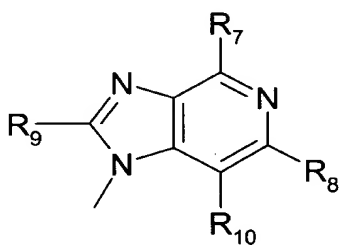
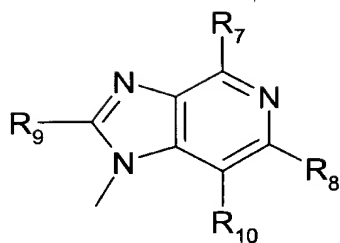
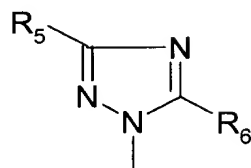
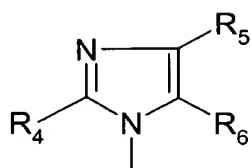
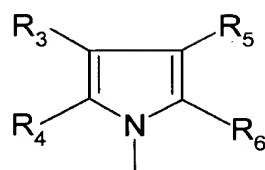
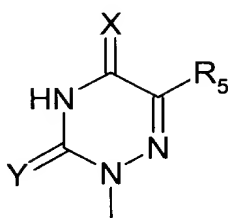
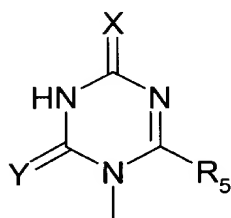
formula (XVII):



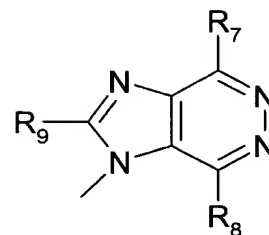
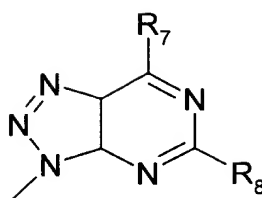
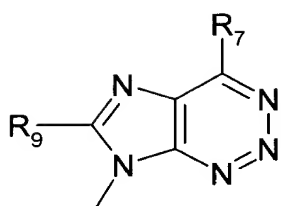
wherein

Z is S;

R₂ is selected from the following group:



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X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

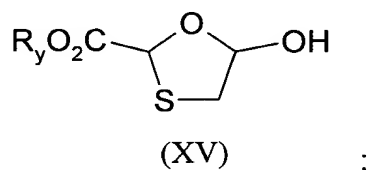
R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxycarbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxycarbonyl, carbamoyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

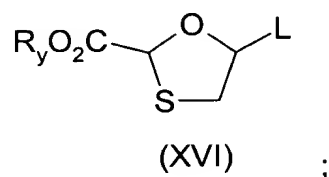
R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy.

56. (Presently Amended) A process comprising:

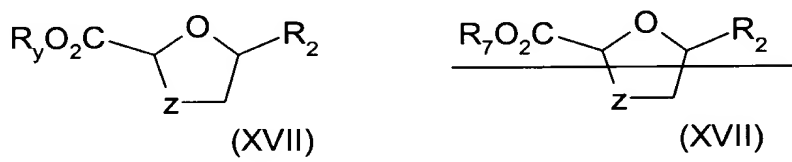
reacting a mercaptoacetaldehyde with a compound of formula R_yOOCCHO, wherein R_y is C₁₋₁₂ alkyl or C₆₋₂₀ aryl to obtain a compound of formula (XV)



converting the hydroxyl of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



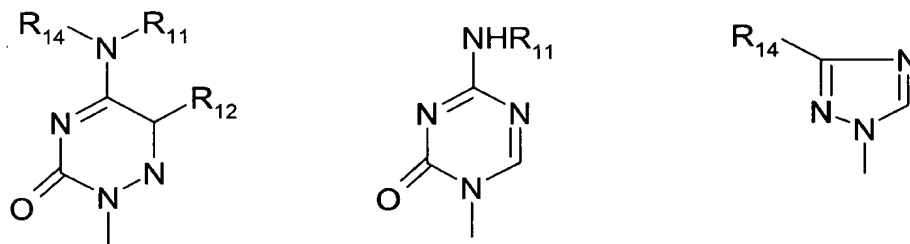
reacting the compound of formula (XVI) with a silylated -R₂ compound in the presence of a Lewis acid, whereby said leaving group is displaced, to produce a compound of formula (XVII):

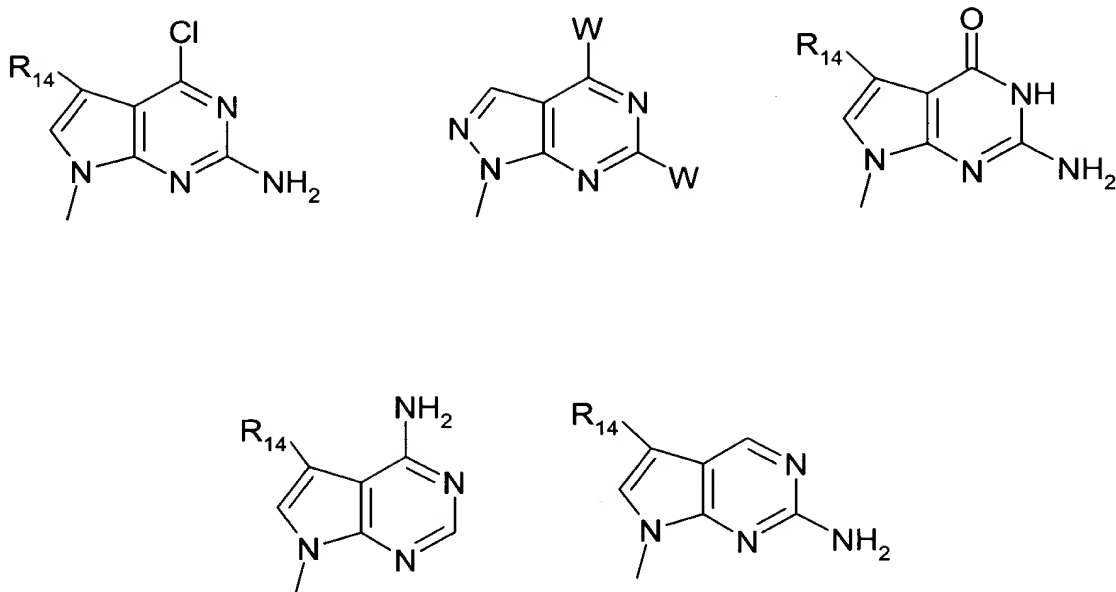


wherein

Z is S ;

R_2 is selected from the following group:





each R_{11} is independently selected from hydrogen, acetyl, and C_{1-6} alkyl;

R_{12} and R_{13} are independently selected from hydrogen, hydroxymethyl, trifluoromethyl, C_{1-6} alkyl, C_{1-6} alkenyl, bromine, chlorine, fluorine, and iodine;

R_{14} is selected from hydrogen, cyano, carboxy, ethoxycarbonyl, carbamoyl, and thiocarbamoyl; and

each W is independently selected from hydrogen, bromine, chlorine, fluorine, iodine, amino, and hydroxyl.

57. (Previously Presented) A process according to claim 55, further comprising oxidizing Z of the compound of formula (XVII) to give a compound of formula (XVII) wherein Z is $S=O$ or SO_2 .

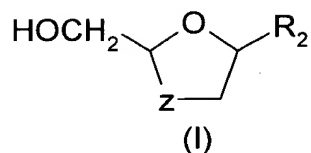
58. (Previously Presented) A process according to claim 55, wherein the Lewis acid is selected from the group consisting of: TMSOTf, TMSI, $TiCl_4$ and $SnCl_4$.

59. (Previously Presented) A process according to claim 55, further comprising

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optionally oxidizing Z of the compound of formula (XVII) to give a compound of formula XVII wherein Z is S=O or SO₂ and

reducing the R_yO_2C group of the compound of formula (XVII) to obtain a compound of formula (I):



wherein:

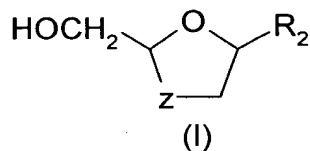
Z is selected from the group consisting of S, S=O and SO₂.

60. (Previously Presented) A process according to claim 56, further comprising oxidizing Z of the compound of formula (XVII) to give a compound of formula (XVII) wherein Z is S=O or SO₂.

61. (Previously Presented) A process according to claim 56, wherein the Lewis acid is selected from the group consisting of: TMSOTf, TMSI, TiCl₄ and SnCl₄.

62. (Previously Presented) A process according to claim 56, further comprising optionally oxidizing Z of the compound of formula (XVII) to give a compound of formula XVII wherein Z is S=O or SO₂ and

reducing the R_yO_2C group of the compound of formula (XVII) to obtain a compound of formula (I):

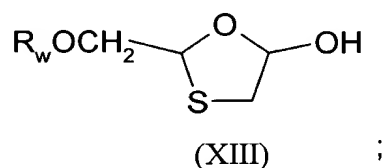


wherein:

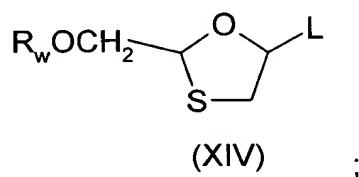
Z is selected from the group consisting of S, S=O and SO₂.

63. (Presently Amended) A process comprising:

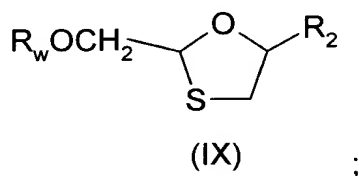
reacting a mercaptoacetaldehyde with a compound of formula R_wOCH_2CHO , under neutral or basic conditions, wherein R_w is hydrogen or a hydroxyl protecting group to obtain a compound of formula (XIII)



converting the hydroxyl of the compound of formula (XIII) to a leaving group L to obtain a compound of formula (XIV):



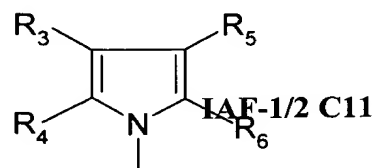
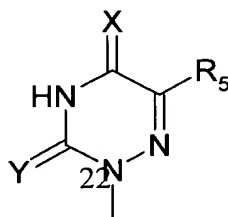
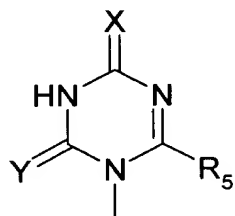
reacting the compound of formula (XIV) with a silylated ~~purine or pyrimidine base or derivative thereof~~ R_2 , in the presence of a Lewis acid, said leaving group is displaced, to produce a compound of formula (IX):

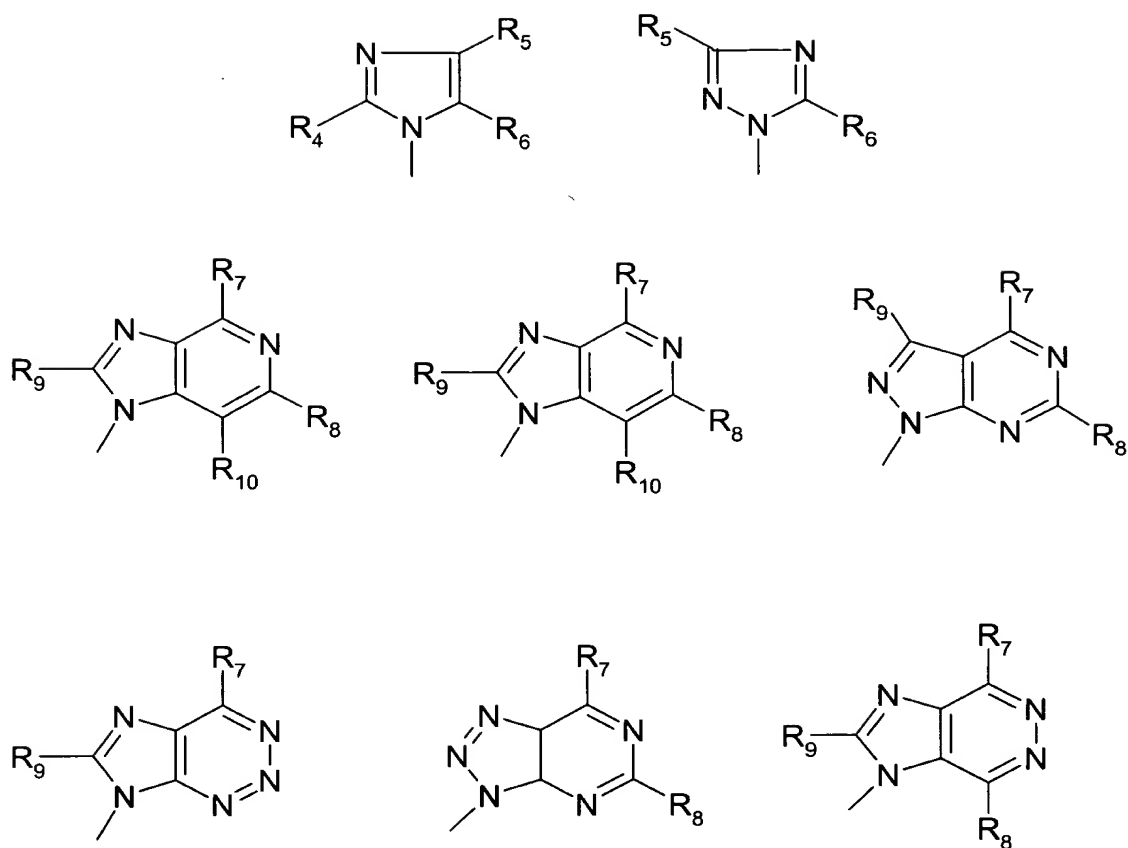


wherein

Z is S, and

R_2 is selected from the following group:





X is oxygen or sulfur; Y is oxygen or sulfur;

R₃ and R₄ are independently selected from the group consisting of hydrogen, hydroxyl, amino, substituted or unsubstituted C₁₋₆ alkyl or C₂₋₆ alkenyl or C₂₋₆ alkynyl, and substituted or unsubstituted C₁₋₁₀ acyl or aracyl;

R₅ and R₆ are independently selected from the group consisting of hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxycarbonyl, hydroxymethyl, trifluoromethyl, thioaryl, substituted or unsubstituted C₁₋₆ alkyl or C₂₋₆ alkenyl or C₂₋₆ alkynyl, and substituted or unsubstituted C₁₋₁₀ acyloxy;

R₇ and R₈ are independently selected from the group consisting of hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, substituted amino, halogen, cyano, carboxy, alkoxycarbonyl,

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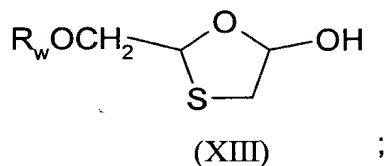
carbamoyl, substituted or unsubstituted C₁₋₆ alkyl, or C₂₋₆ alkenyl, or C₂₋₆ alkynyl, and substituted or unsubstituted C₁₋₁₀ acyloxy; and

R₉ and R₁₀ are independently selected from the group consisting of hydrogen, hydroxy, alkoxy, amino, substituted amino, halogen, azido, substituted or unsubstituted C₁₋₆ alkyl or C₂₋₆ alkenyl or C₂₋₆ alkynyl, and substituted or unsubstituted C₁₋₁₀ acyloxy+ and

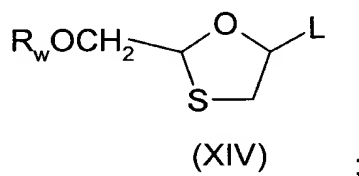
optionally further comprising oxidizing Z of said compound of formula (IX) to obtain a compound of formula (IX) wherein Z is S=O or SO₂.

64. (Presently Amended) A process comprising:

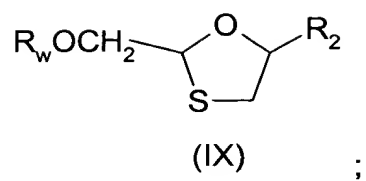
reacting a mercaptoacetaldehyde with a compound of formula R_wOCH₂CHO, under neutral or basic conditions, wherein R_w is hydrogen or a hydroxyl protecting group to obtain a compound of formula (XIII)



converting the hydroxyl of the compound of formula (XIII) to a leaving group L to obtain a compound of formula (XIV):



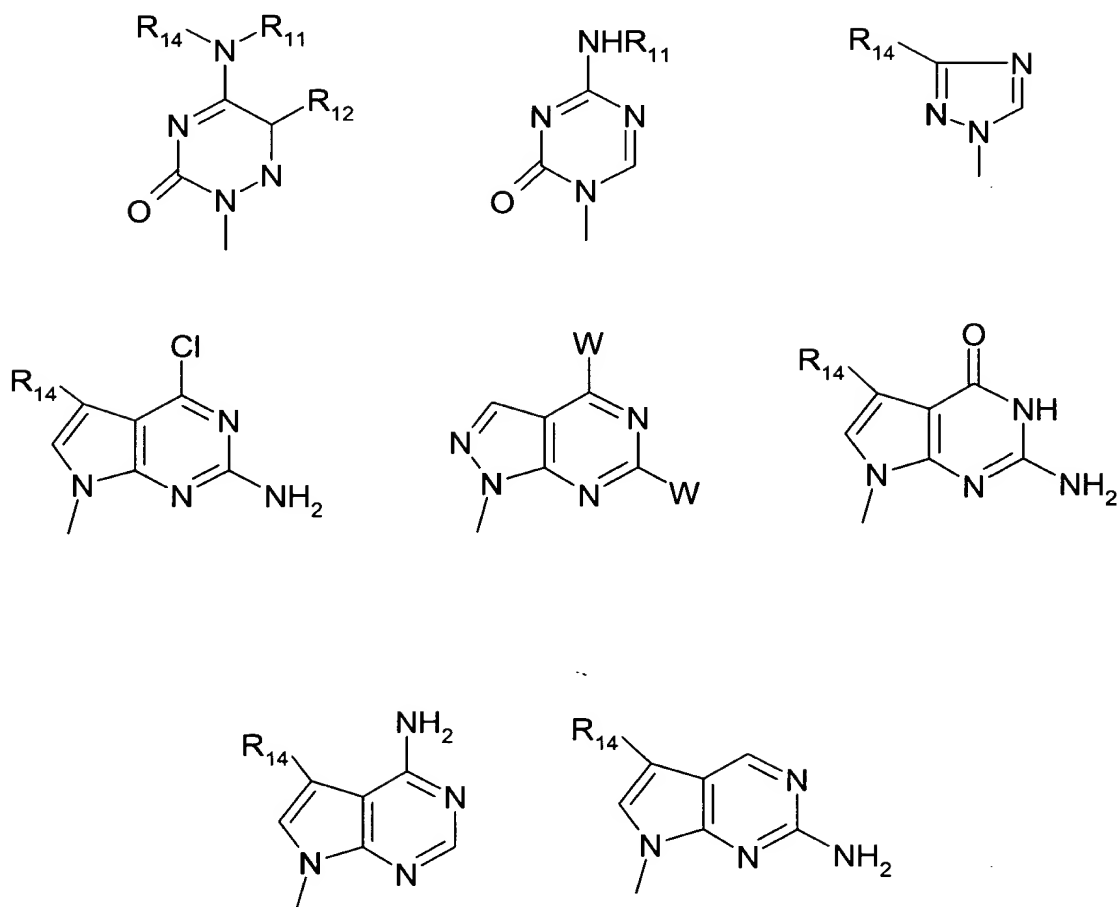
reacting the compound of formula (XIV) with a silylated ~~purine or pyrimidine base or derivative thereof~~ R₂, in the presence of a Lewis acid, said leaving group is displaced, to produce a compound of formula (IX):



wherein

Z is S, and

R₂ is selected from the following group:



wherein

each R_{11} is independently selected from hydrogen, acetyl, and C_{1-6} alkyl groups;

R_{12} and R_{13} are independently selected from hydrogen, hydroxymethyl, trifluoromethyl, substituted or unsubstituted C_{1-6} alkyl or alkenyl, bromine, chlorine, fluorine, and iodine;

R_{14} is selected from hydrogen, cyano, carboxy, ethoxycarbonyl, carbamoyl, and thiocarbamoyl; and

each W is independently selected from hydrogen, bromine, chlorine, fluorine, iodine, amino, and hydroxyl groups.

65. (Previously Presented) A process according to claim 63, wherein L is OR_z , wherein R_z is selected from: C_{1-6} alkyl groups, C_{1-6} aliphatic, aromatic acyl groups, saturated or unsaturated alkoxy carbonyl groups, sulphonyl imidazolid, carbonyl imidazolid, aliphatic or aromatic amino carbonyl groups, alkyl imidate groups, saturated or unsaturated phosphinoyl, and aliphatic or aromatic sulphonyl groups.

66. (Previously Presented) A process according to claim 64, wherein L is OR_z , wherein R_z is selected from: C_{1-6} alkyl groups, C_{1-6} aliphatic, aromatic acyl groups, saturated or unsaturated alkoxy carbonyl groups, sulphonyl imidazolid, carbonyl imidazolid, aliphatic or aromatic amino carbonyl groups, alkyl imidate groups, saturated or unsaturated phosphinoyl, and aliphatic or aromatic sulphonyl groups.

67. (Previously Presented) A process according to claim 63, wherein the mercaptoacetaldehyde is a monomer obtained from 1,4-dithiane-2,5-diol dissolved in an inert solvent.

68. (Previously Presented) A process according to claim 67, wherein said inert solvent is selected from pyridine, toluene and DMSO.

69. (Previously Presented) A process according to claim 63, further comprising oxidizing the sulfur of the compound of formula (IX) to give a compound of formula (IX) wherein Z is $S=O$ or SO_2 .

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70. (Previously Presented) A process according to claim 64, wherein the mercaptoacetaldehyde is a monomer obtained from 1,4-dithiane-2,5-diol dissolved in an inert solvent.

71. (Previously Presented) A process according to claim 70, wherein said inert solvent is selected from pyridine, toluene and DMSO.

72. (Previously Presented) A process according to claim 64, further comprising oxidizing the sulfur of the compound of formula (IX) to give a compound of formula (IX) wherein Z is S=O or SO₂.

73. (Withdrawn) A compound selected from the group consisting of:
trans-2-hydroxymethyl-5-acetoxy-1, 3-oxathiolane;
cis-2-benzoyloxymethyl-5-hydroxy-1,3-oxathiolane,
trans-2-benzoyloxymethyl-5-hydroxy-1,3-oxathiolane and mixtures thereof;
cis-2-benzoyloxymethyl-5-(4',5'-dichlorobenzoyloxy)-1,3-oxathiolane, *trans*-2-benzoyloxymethyl-5-(4',5'-dichlorobenzoyloxy)-1,3-oxathiolane and mixtures thereof;
cis-2-benzoyloxymethyl-5-trimethylacetoxymethyl-1,3-oxathiolane, *trans*-2-benzoyloxymethyl-5-trimethylacetoxymethyl-1,3-oxathiolane and mixtures thereof;
cis-2-benzoyloxymethyl-5-(2', 2', 2'-trichloroethoxycarbonyloxy)-1,3-oxathiolane, *trans*-2-benzoyloxymethyl-5-(2', 2', 2'-trichloroethoxycarbonyloxy)-1, 3-oxathiolane and mixtures thereof;
cis-2-benzoyloxymethyl-5-ethoxycarbonyloxy-1, 3-oxathiolane, *trans*-2-benzoyloxymethyl-5-ethoxycarbonyloxy-1, 3-oxathiolane and mixtures thereof;
cis-2-benzoyloxymethyl-5-methoxycarbonyloxy-1, 3-oxathiolane, *trans*-2-benzoyloxymethyl-5-methoxycarbonyloxy-1, 3-oxathiolane and mixtures thereof;
cis-2-benzoyloxymethyl-5-acetoxy-1, 3-oxathiolane, *trans*-2-benzoyloxymethyl-5-acetoxy-1, 3-oxathiolane, and mixtures thereof;
cis-2-benzoyloxymethyl-5-(N4'-acetylcytosin-1'-yl)-1, 3-oxathiolane, *trans*-2-benzoyloxymethyl-5-(N4'-acetylcytosin-1'-yl)-1, 3-oxathiolane and mixtures thereof;

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cis-2-benzoyloxymethyl-5-(cytosin-1'-yl)-1, 3-oxathiolane, *trans*-2-benzoyloxymethyl-5-(cytosin-1'-yl)-1, 3-oxathiolane and mixtures thereof;

cis-2-carboethoxy-5-hydroxy-1, 3-oxathiolane, *trans*-2-carboethoxy-5-hydroxy-1, 3-oxathiolane and mixtures thereof;

cis-2-carboethoxy-5-methoxycarbonyloxy-1, 3-oxathiolane, *trans*-2-carboethoxy-5-methoxycarbonyloxy-1, 3-oxathiolane and mixtures thereof;

cis-2-carboethoxy-5-acetoxy-1, 3-oxathiolane, *trans*-2-carboethoxy-5-acetoxy-1, 3-oxathiolane and mixtures thereof;

cis-2-carboethoxy-5-(N4'-acetylcytosin-1'-yl)-1, 3-oxathiolane;

cis-2-carboethoxy-5-(uracil-1'-yl)-1, 3-oxathiolane;

cis-benzoyloxymethyl-5-(cytosin-1'-yl)-1, 3-oxathiolane;

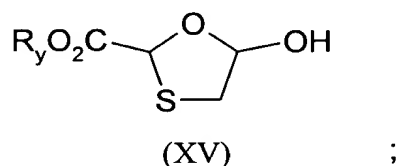
cis-ethyl-5-iodo-1, 3-oxathiolan-2-carboxylate, *trans*-ethyl-5-iodo-1, 3-oxathiolan-2-carboxylate and mixtures thereof;

cis-ethyl-5-(6'-chloropurin-9'-yl)-1, 3-oxathiolan-2-carboxylate, *trans*-ethyl-5-(6'-chloropurin-9'-yl)-1, 3-oxathiolan-2-carboxylate and mixtures thereof; and

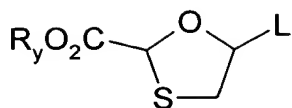
cis-ethyl-5-(6'-chloropurin-7'-yl)-1, 3-oxathiolan-2-carboxylate, *trans*-ethyl-5-(6'-chloropurin-7'-yl)-1, 3-oxathiolan-2-carboxylate and mixtures thereof.

74. (Presently Amended) A process comprising:

reacting a mercaptoacetaldehyde with a compound of formula $R_yOOCCHO$, wherein R_y is C_{1-12} alkyl or C_{6-20} aryl to obtain a compound of formula (XV)

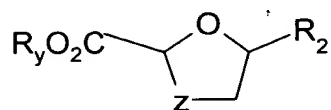


converting the hydroxyl group of the compound of formula (XV) to a leaving group L to obtain a compound of formula (XVI):



(XVI)

reacting the compound of formula (XVI) with a silylated R_2 - compound, in the presence of a Lewis acid, whereby said leaving group is displaced, to produce a compound of formula (XVII):

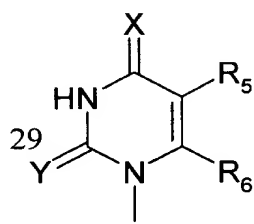
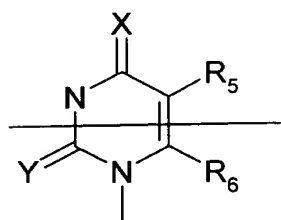
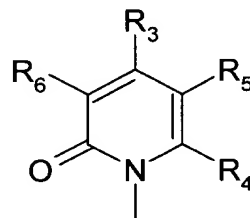
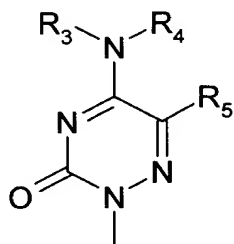
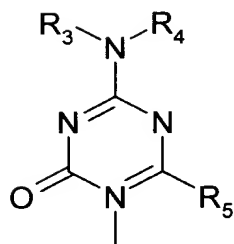
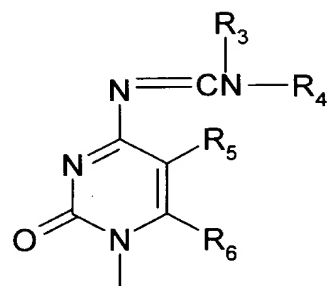
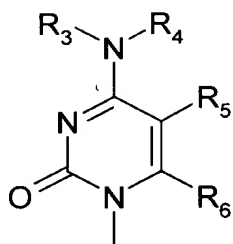


(XVII)

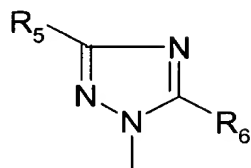
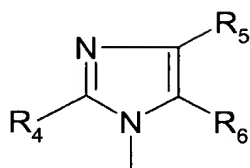
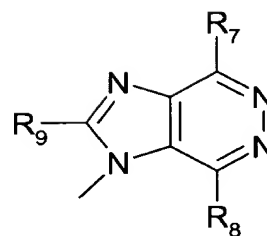
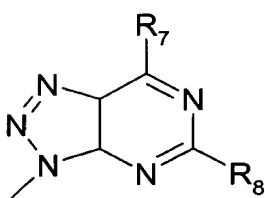
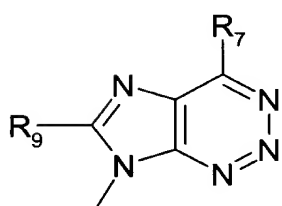
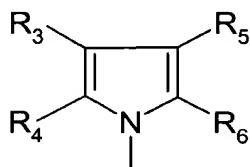
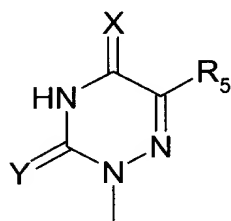
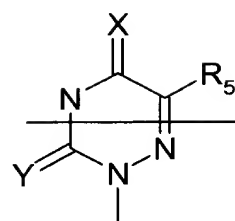
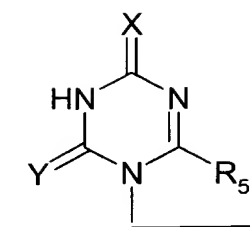
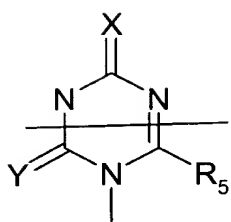
wherein

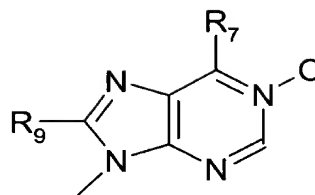
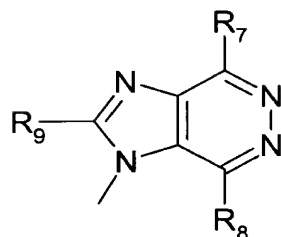
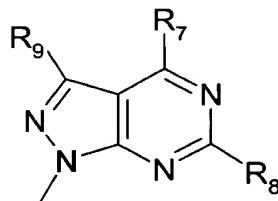
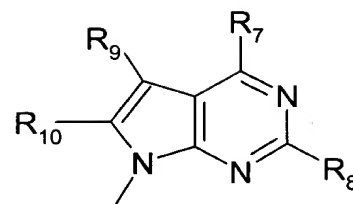
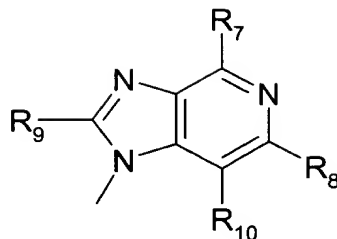
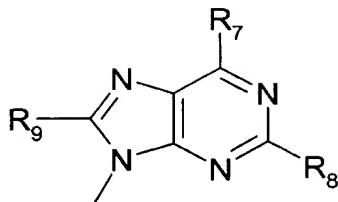
Z is S;

R_2 is selected from the following group:



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X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxycarbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

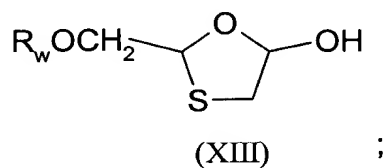
R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxycarbonyl, carbamoyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy.

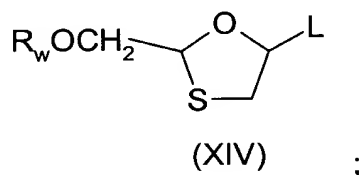
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75. (Presently Amended) A process comprising:

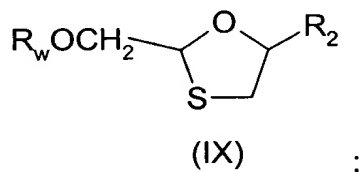
reacting a mercaptoacetaldehyde with a compound of formula R_wOCH_2CHO , under neutral or basic conditions, wherein R_w is hydrogen or a hydroxyl protecting group to obtain a compound of formula (XIII)



converting the hydroxyl of the compound of formula (XIII) to a leaving group L to obtain a compound of formula (XIV):



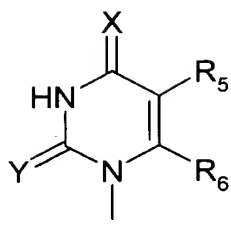
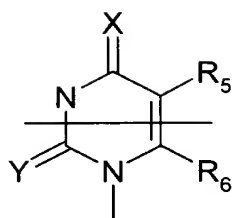
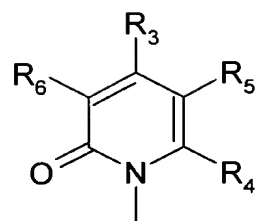
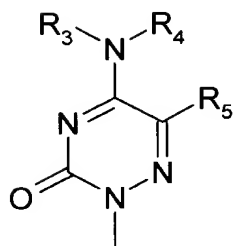
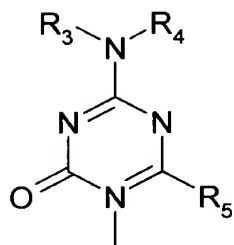
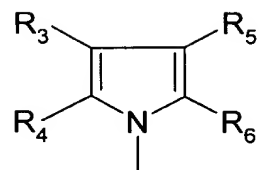
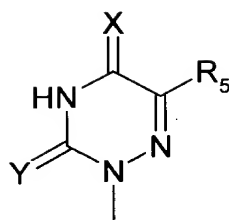
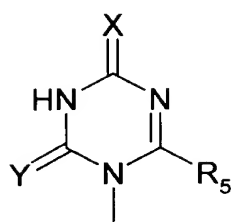
reacting the compound of formula (XIV) with a silylated purine or pyrimidine base or derivative thereof R_2 , in the presence of a Lewis acid, said leaving group is displaced, to produce a compound of formula (IX):



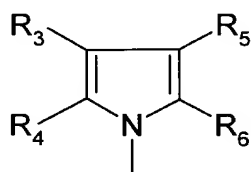
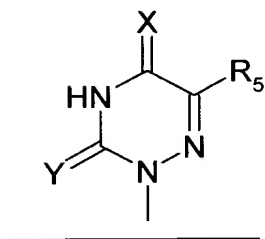
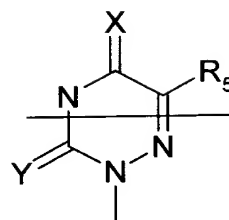
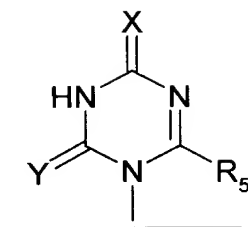
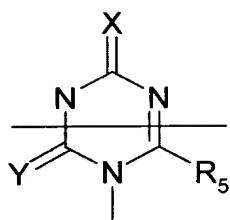
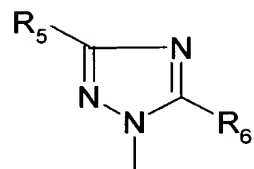
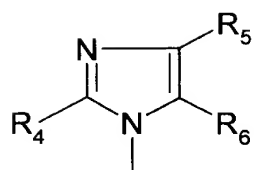
wherein

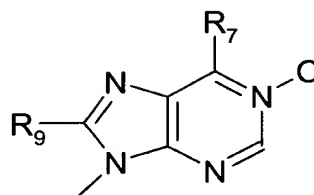
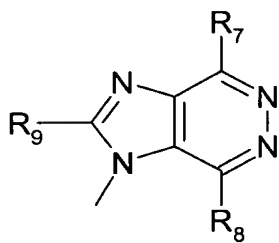
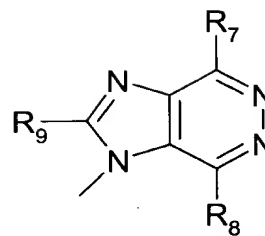
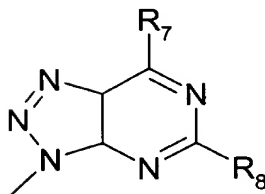
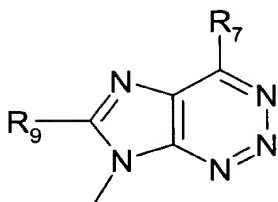
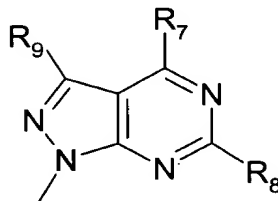
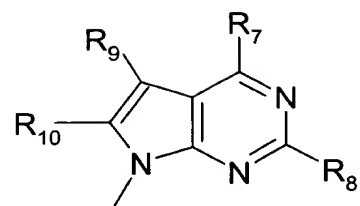
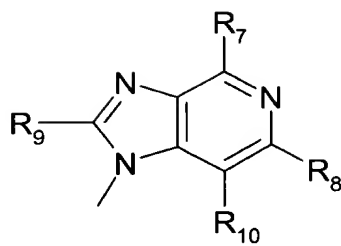
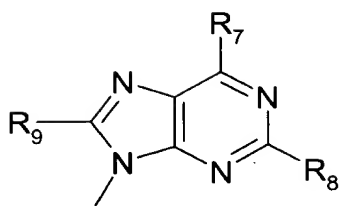
Z is S, and

R_2 is selected from the following group:



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X is oxygen or sulfur;

Y is oxygen or sulfur;

R₃ and R₄ are independently selected from hydrogen, hydroxyl, amino, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyl or aracyl;

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R₅ and R₆ are independently selected hydrogen, halogen, hydroxyl, amino, cyano, carboxy, carbamoyl, alkoxy carbonyl, hydroxymethyl, trifluoromethyl, thioaryl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy;

R₇ and R₈ are independently selected from hydrogen, hydroxy, alkoxy, thiol, thioalkyl, amino, halogen, cyano, carboxy, alkoxy carbonyl, carbamoyl, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy; and

R₉ and R₁₀ are independently selected from the hydrogen, hydroxy, alkoxy, amino, halogen, azido, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, and C₁₋₁₀ acyloxy.